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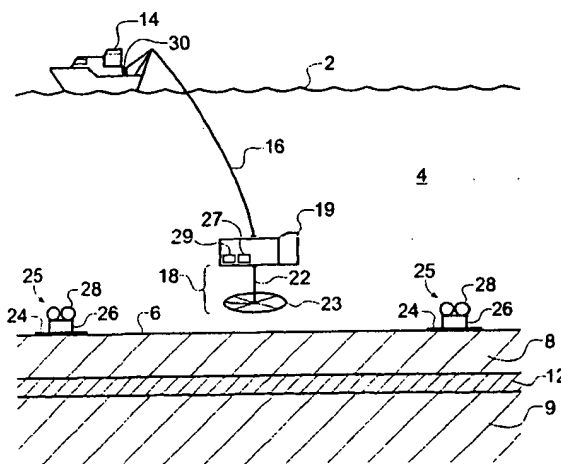
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(54) Title: **ELECTROMAGNETIC SURVEYING FOR HYDROCARBON RESERVOIRS**



(57) Abstract: An electromagnetic survey method for surveying an area of seafloor that is thought or known to contain a subter-
ranean hydrocarbon reservoir, comprising obtaining a first survey data set with a vertical electric dipole (VED) antenna for generating
vertical current loops and a second survey data set with a vertical magnetic dipole (VMD) antenna for generating horizontal current
loops. In an alternative embodiment, the VMD antenna is dispensed with and the horizontal electromagnetic field is derived from the
naturally occurring magnetotelluric (MT) electromagnetic field. In another alternative embodiment, the VED data is compared with
a background geological model instead of VMD or MT data. The invention also relates to a survey apparatus comprising VED and
VMD antennae, to planning a survey using this method, and to analysis of survey data taken using this survey method. The first and
second survey data sets allow the galvanic contribution to the detector signals collected at a detector to be independently contrasted
with the inductive effects. This is important to the success of using electromagnetic surveying for identifying hydrocarbon reserves
and distinguishing them from other classes of structure.

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